Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel claim 28 and amend claim 1 as follows:

Listing of Claims:

1. (Currently Amended) A device for manipulating particles in a sample fluid using dielectrophoresis, the device comprising:

a substrate;

an insulating positive ridge on the substrate positioned such that the sample fluid may pass over the positive ridge;

a plurality of electrodes spaced away from the ridge to generate a spatially non-uniform electric field across the insulating ridge.

2. (Original) A device according to claim 1, further comprising a plurality of the insulating ridges.

3. (Previously Presented) A device according to claim 1, wherein the substrate comprises glass.

4. (Previously Presented) A device according to claim 1, wherein the substrate comprises a polymer.

5. (Previously Presented) A device according to claim 1, wherein the insulating ridges comprise an insulating material supported by a non-insulating material.

6. (Previously Presented) A device according to claim 1, further comprising a voltage source connected to the plurality of electrodes.

7. (Previously Presented) A device according to claim 1, wherein the plurality of ridges on the substrate define a surface of a first fluid channel.

8. (Previously Presented) A device according to claim 7, further comprising a fluid port connected to the first channel.

9. (Previously Presented) A device according to claim 7, further comprising a second fluid channel connected to the first fluid channel.

10. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are each at an angle of between 20 and 80 degrees relative to a direction of fluid flow.

11. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are each at an angle of about 45 degrees relative to a direction of fluid flow.

12. (Previously Presented) A device according to claim 1, wherein the plurality of ridges includes a first ridge and a second ridge, said first and second ridges being positioned at different angles relative to a direction of fluid flow.

13. (Previously Presented) A device according to claim 1, wherein at least one ridge of the plurality of ridges is curved toward a concentration area.

14. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are curved toward a concentration area.

15. (Previously Presented) A device according to claim 10, further comprising:

a plurality of impedance matching ridges substantially parallel to the direction of fluid flow.

16. (Previously Presented) A device according to claim 13, further comprising:

a plurality of impedance matching ridges substantially parallel to a direction of fluid flow.

17. (Previously Presented) A device according to claim 1, wherein the spatially non-uniform electric field generated across the ridges exerts a dielectrophoretic force on at least one of said particles.

18. (Previously Presented) A device according to claim 17, wherein said particles comprise particles selected from the group of particles consisting of bacteria, cells, and viruses.

19. (Previously Presented) A method for manipulating particles using dielectrophoresis, the method comprising:

generating a spatially non-uniform electric field across an insulating ridge;

passing a sample fluid containing the particles over the insulating ridge, the spatially non-uniform electric field exerting a dielectrophoretic force on the particles thereby constraining motion of at least one particle;

exerting a mobilization force on at least the constrained particle; and

transporting at least the constrained particle along the ridge utilizing the mobilization force as the sample fluid continues to pass over the insulating ridge.

20. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises electrokinetic transport.

21. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises advection.

22. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises transporting particles using a gravitational force.

23. (Canceled)

24. (Previously Presented) A method according to claim 19, wherein the insulating ridges are positioned at an angle with respect to the direction of fluid flow.

25. (Previously Presented) A method according to claim 19, further comprising transporting the particles to a concentration area.

26. (Previously Presented) A method according to claim 19, further comprising:

generating a spatially non-uniform electric field across a plurality of insulating ridges including a first ridge and a second ridge, thereby constraining motion of at least a first particle to a region adjacent the first ridge;

changing the spatially non-uniform electric field such that the dielectrophoretic force on the first particle is decreased; and

transporting the first particle to the second ridge.

27. (Previously Presented) A device according to claim 1, wherein the ridge is a positive ridge.

28. (Canceled)

29. (Previously Presented) A method according to claim 19, wherein the ridge is a positive ridge.

30. (Previously Presented) A method according to claim 19, wherein the ridge is a negative ridge.

31. (Previously Presented) A device according to claim 1, wherein non-uniformity in the electric field is generated primarily by the ridge geometry.

32. (Previously Presented) A device according to claim 1, wherein the electrode is spaced sufficiently away from the ridge such that non-uniformity in the electric field is generated primarily by the ridge geometry.